

CTSC 5600

Statistics in Clinical and Translational Research

Faculty: Jeremiah Aakre, MPH and Travis Dockter

Credits: 2

Quarters: Winter & Summer

Prerequisites: None

Overview

This course introduces basic statistical methods used in a variety of clinical study designs. Course materials use published or ongoing clinical research studies and emphasize statistical reasoning and concepts. General concepts covered are exploratory data analysis, descriptive statistics, estimation, and inference. Statistical techniques covered are those for comparing counts/proportions, for comparing means, and for comparing diagnostic tests. Coverage of each statistical technique includes identifying what research questions it can address, verifying that assumptions are adequately met, and identifying the limitations of the conclusions.

Objectives

To provide a broad overview of basic statistical concepts, reasoning, and methods. In particular, the primary goals for this course are to help you to develop:

- the ability to interpret the results of a variety of basic statistical techniques, including both exploratory and inferential methods;
- the ability to recognize, define, and differentiate fundamental concepts of statistics, such as variability, distribution, association, causation, sampling, experimentation, confidence, and significance;
- tools to determine appropriate statistical methods for different types of data and study designs; and
- a critical perspective with which to assess and defend statistical arguments such as those in scholarly publications.

Evaluation

For each of the seven modules, students will be required to complete a set of practice questions and a homework assignment. For module 7, there will be a required quiz. Students will be awarded points for preparatory quizzes for each of the two exams, a midterm and a cumulative final.

Students will be expected to spend approximately four to six hours of time on this 2-credit course per week.

For specific dates and times this course is provided, please see the [quarterly detailed course schedule](#).

Additional online modules related to this topic are available on the [Continuous Professional Development website](#).

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